

# **BISBEE MUNICIPAL AIRPORT**

## **Bisbee, Arizona**

### **AIRPORT MASTER PLAN - 1999**

#### **INTRODUCTION, BACKGROUND & INVENTORY**

#### **AIRPORT DEVELOPMENT: HISTORY AND BACKGROUND**

This section of the Master Plan will provide an historical overview of the Bisbee Municipal Airport (FAA Site P04), based upon review of available records and documents compiled during an extensive inventory. A discussion of some of the historical factors which have had an impact upon the growth and development of the airport is also included.

The City of Bisbee is located in southeastern Cochise County, nestled within the hills that make up the Mule Mountains. The City is about 100 miles southeast of Tucson, and only about 7 miles from the U.S./Mexico border. Bisbee was originally developed because of the discovery of rich deposits of copper. Over the years, the area has grown with the increase of the copper mines and has declined along with the decline of the mining industry.

The Bisbee Municipal Airport has existed since the late 1920's, providing general aviation service to the area.

#### **The Early History of the Bisbee Area**

Through prehistoric times, and into the early 19th century, the area around Bisbee was used by the Apache Indians as a route in their frequent raids on other indigenous tribes, and later upon white settlers. A spring in a pass in the mountains located at the bottom of Castle Rock was used to water the horses and mules that the Apaches had captured from settlers. The Spanish named the pass *Puerta de las Mulas* or Mule Pass and it is believed that it is from this that the Mule Mountains get their name.

The Bisbee area became a part of the United States as a result of the acquisition of what would become the Arizona Territory, as part of the Gadsden Purchase in 1853. It was obtained in order to provide a railroad route from the southern U.S. to the

Bisbee's  
Early Mining  
Days

Pacific. However, construction of the rail line was delayed due to the Civil War. This part of the Arizona territory was virtually uninhabited and little-used until the late 1870's.

Some time in May of 1877, Lieutenant John A. Rucker and fifteen men from Company C of the U.S. Sixth Cavalry were traversing the area in pursuit of hostile Apaches. While stopping at the spring at the bottom of Castle Rock, Lieutenant Rucker and a civilian tracker named Jack Dunn found the characteristic faint green stain on a hillside, which indicated the presence of copper, lead, and perhaps even silver. Because of the commitments of their military life, a mining claim was not registered until August of 1877. An experienced prospector named George Warren was taken on as a partner in Rucker and Dunn's venture. Warren immediately went to work searching the area for further claims.

Mr. Warren was successful in his ventures, establishing several additional claims during the rest of 1877 and into 1878. However, all of them were registered in his name only. Jack Dunn was never listed on another claim in the Bisbee area and for years George Warren was considered as a "founder" of the Bisbee mining interests.

Between 1878 and 1881, many more mining claims were staked. However, because getting minerals out of the land was an expensive proposition, many of the mines were abandoned as economically impractical ventures. There were very few people in the 19th century West with adequate money to invest in proper mining techniques. A few of the local mines did succeed, however, and this attracted the interest of James Douglas, a Canadian. In 1881, Mr. Douglas traveled to Bisbee. Douglas had an association with an Eastern U.S. mining firm, the Phelps Dodge corporation. He recommended that Phelps Dodge acquire existing Bisbee mining claims and that mining operations be started there. Phelps Dodge agreed and came to Bisbee, acquiring existing claims, establishing new claims and beginning an aggressive mining operation.

Another local mining interest was successfully operating the Copper Queen mine during this time. The Copper Queen had been established in 1879 by Mr. DeWitt Bisbee, who secured financing for the original mine.

In 1884, Phelps Dodge discovered a major copper ore body in it's Atlantic mine. Coincidentally, this body was also discovered by the Copper Queen mine. Instead of contesting this major strike, the two mines joined forces and became the



*Workers in a Bisbee smelter near the turn of the century  
(courtesy of the Bisbee Mining & Historical Museum)*

## The Founding of the City of Bisbee

Copper Queen Consolidated mining company.

In 1880, the small mining community petitioned the U.S. government for a post office to be established. The City's founders selected the name of Bisbee for their community, after Judge DeWitt Bisbee who helped secure financing for the original Copper Queen mine.

Bisbee rapidly increased in size as mining activities increased. During the 1880's the small mining community grew from a few hundred to about 1,500 individuals. General stores, bars and other entertainment establishments were opened. Originally located in tent buildings, these establishments were gradually rebuilt as frame or brick structures as their owners prospered.

The early years of the town's history were difficult for the early settlers. In order to secure building materials to construct the town, and later for adequate heating fuel, the surrounding hills were stripped of vegetation. This would allow for torrential flooding which came annually with the monsoon rains. After one such major flood in 1890, flood gates were placed in Tombstone Canyon and wooden flood channels were created to divert the waters. This mitigated the flooding to some degree, but seasonal flooding continued with major floods occurring again in 1896, 1902 and 1908. The sanitary conditions in the young town were also less than desirable. No sewer system existed at the time, and the Brewery Gulch district was a likely breeding ground for disease, with its filthy, slime-filled streets with rotting carcasses, garbage, and raw sewage evident. As a result, small pox and typhoid attacked the residents of Bisbee.



*View of the City of Bisbee, c1920  
(courtesy of the Bisbee Mining & Historical  
Museum)*

Fire roared through the downtown district in 1907 and 1908, virtually destroying the town. In 1910, the City issued an ordinance banning the construction of any wood frame commercial buildings as a means to avoid this type of widespread loss in the future. By 1912 the town was rebuilt and much of the present townsite from this time period is intact today.

Bisbee's population continued to grow through the early part of the new century. By 1910 it was considered the largest city in the Arizona Territory, with a population of over 25,000 people. By the time of Arizona's statehood in 1929, Bisbee was one of the three largest cities in the state along with Phoenix and the new state capitol of Prescott.

The areas surrounding Bisbee began to be developed during the 1920's. These included Warren, Lowell, South Bisbee, Bakerville, Tin Town, Briggs, San Jose, Germantown, and Johnson.

The original Cochise County seat was Tombstone. However, in 1930, the seat was moved to Bisbee, where it remains today.

In 1951, operations at the Lavender open pit mine began. In 1968, the Hollander pit was added.

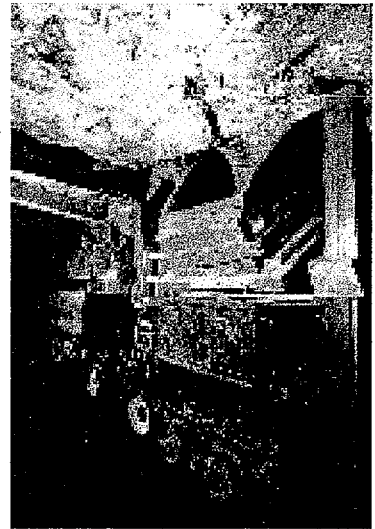
### The Decline of Mining Operations

Open pit mining continued in Bisbee until 1974, when large scale copper mining operations became unprofitable. In 1974, the open pits were closed. In 1975 underground mining was also discontinued, and the decline in Bisbee's population began.

Bisbee proved to be one of the richest mineral sites in the world, producing more than eight billion pounds of copper, and nearly three million ounces of gold, as well as significant amounts of lead, silver, and zinc.

### Current Mining Activity

Because of recent technological advances and increases in copper prices, some mining activities have begun again in Bisbee. Phelps Dodge is now able to retrieve 20,000 pounds of copper ore each day from the mine tailings left by earlier mine operations. Major mining operations may begin again in Bisbee in an area near the current Lavendar pit, pending the outcome of environmental studies and relocation of a major roadway.



*Inside the Copper Queen Mine  
(courtesy of the Bisbee Mining &  
Historical Museum)*

### The People of Early Bisbee

During the early part of the 20th century, Bisbee grew at a rapid rate and was a melting pot of diverse culture and ethnicity. People came from all over the world to establish businesses and to work in the copper mines. Some of these people would become famous and extremely successful in their own right, but most were working class families who came to Bisbee seeking for employment in the mines. Some of the early residents are described below (most of these are courtesy of the Bisbee High School's research, as published on the Internet):

- Joseph Muheim was originally from Switzerland. He established a brewery, a bank, and a stock exchange in the growing town.

- Henry Waters came from England and established a boot and shoe repair shop in Bisbee.
- William H. Brophy and his brother Michael J. Brophy came from Ireland. William became the manager of the Copper Queen stores, he also had interests in mining and banking. Michael was the manager of the Bisbee branch of the Copper Queen stores and had an interest in the Bank of Bisbee. The Brophy Catholic prep school in Phoenix is named for the Brophy family.
- John G. Pritchard came from North Wales in 1848 to become the first librarian in Bisbee. He was also the town's first Protestant minister of the Presbyterian Church. He also worked as a Postmaster, Great Register, Official U.S. Weather Observer, and real estate partner.
- George B. Wills came from England in 1898. He was a brick maker.
- Baptisto Caretto came from Tuscany Italy. He ran a local saloon and acquired a large amount of real estate. He then started a construction business. He served as a Councilman and was active in restricting "working girls" to the Brewery Gulch area.
- Martin O'Hare came from Ireland to run the Wells Fargo Station which is now considered the first residence on Bisbee's tax rolls. It is now referred to as the Goldwater Ranch.
- Around the turn of the century, a Mr. Vercellino came from Italy and established a local Brewery Gulch saloon, the St. Elmo, which is still in operation today. His son, James Vercellino, one of the first generation to be born and raised in Bisbee, went on to become the first Director of the Arizona Department of Aeronautics (which would later become the Aeronautics Division of the Arizona Department of Transportation, or ADOT-Aeronautics). He served as such from 1956 until 1976, and was responsible for the development of much of the present Arizona airport system. After his retirement from ADOT, Mr. Vercellino continued to be active as an airport planning consultant.
- People came from all over the United States as well. One of these was the great-great grandson of Thomas Jefferson, Dr. Francis Eppes Shine, who came from Florida. He ran the Copper Queen Hospital as the Chief surgeon for the Copper Queen company.
- Louis W. Powell came from Missouri to be a merchant, real estate businessman and miner. He became the manager of the Calumet and Arizona company.
- John Campbell Greenway came from Alabama. He became the General

Manager of the Calumet and Arizona company and became a General during World War I. His wife, Isabella, was elected to the United States Congress in 1934. The local elementary school is named after him.

- Gerald Fitzhearld Sherman came from New York state. He became the Superintendent of the mine department of the Copper Queen Consolidated Mining Company.

Others came from areas unknown and still made their mark in Bisbee.

- One of these was Joseph E. Curry who was Chief Clerk of the Calumet and Arizona Company. He also became the Secretary of the Warren Company and the Secretary-Treasurer of the Apache Powder Company.
- John S. (Jack) Taylor was the assistant mine superintendent. He was the first mayor of Bisbee (appointed to the position), he was later elected to the office for a term. He also has a local street named after him.
- Ernest B. Mason was the proprietor of the water company. At first the water was delivered by burro train. Later, water pipes were installed.

#### Bisbee's Historical Significance

In 1971, Bisbee was registered as an historic landmark. Many of the buildings in the original townsite have since been added to the National Register of Historic Places. There are very few locations with as many intact historically significant structures. Bisbee's collection of historic structures showcase the wealth and interest in culture and architecture that was present in the burgeoning turn of the century mining community.

The baseball field in Bisbee is believed to be the oldest continuously operated baseball field in the United States. Bisbee's Copper Queen Library is the oldest continuous library in Arizona. Bisbee's golf course is also one of the oldest in the state.

#### The Early History of the Bisbee Municipal Airport: 1920-1940

The Bisbee Municipal Airport began its life some time in the late 1920's, when barnstorming pilots began to use a field just south of the town of Warren. There were no defined runways at this time, and pilots were able to land and depart into the wind using the cleared 187 acre square of land.

During the 1930's and early 1940's activity at the airfield increased as private aircraft became more common. At this time, there were two privately owned aircraft based at the Bisbee airfield. These were owned by two local doctors, Dr. Piepergerdes and Dr. Tuell. In about 1932 the doctors constructed two aircraft hangars, which still exist today.

Factors Affecting  
Airport  
Development:  
1940-1945

At its entry into World War II, the United States was faced with the task of building an Armed Forces that would be capable of defeating the Axis nations on a worldwide battleground. At the beginning of the war, the U.S. Army, Navy, Marines and Army Air Forces had a combined complement of 2,167,000 people. During the war years, this would peak at 14,905,000. The Army Air Forces in 1941 had a total of 210,000 servicemen and only about 2,500 airplanes. During the war this would peak at 2,400,000 servicemen and over 80,000 aircraft.

As U.S. industry geared up to manufacture the equipment for war, the Army and Navy began an unprecedented training program. The government began the expansion of existing bases and the construction of new training bases all over the country. New training airfields required an abundance of good flying weather and "wide open spaces". The desert southwest and western plains states were a natural selection for this endeavor, and air bases were built throughout the southwestern states, including several locations in Arizona.

Cochise County played an important role as a key training location for the U.S. Army Air Forces during this time. The Douglas Army Airfield (now Bisbee-Douglas International Airport) was constructed near the City of Douglas, about 24 miles east of Bisbee. During the war years there were as many as 5,500 troops stationed at Douglas at any one time. Similar activity was occurring at Sierra Vista, about 26 miles west of Bisbee.

Many of the thousands of aviation-minded servicemen and women who became acquainted with Arizona during the war decided to settle there afterward.

During the war years, activity at the Bisbee Municipal Airport increased, with extensive use by general aviation, the Civil Air Patrol and some military use.

Post-War  
Activity and  
Improvements

After the end of the war in 1945-46 there were thousands of military-trained pilots, and a public appreciation and attraction for the wonders of flight. The aircraft industry had expanded to accommodate the government's need for new aircraft and now these facilities were suddenly idle. Aircraft manufacturers began to change their focus from the manufacture of war planes to civilian transport and sport aircraft. While Douglas, Lockheed and Boeing focused primarily on production of airliners, Cessna, Beechcraft, Grumman, Piper, Taylorcraft, Aeronca, Stinson, North American, Interstate and others began to produce light aircraft at an unprecedented level with the intention of accommodating the demand for aircraft by the newly-trained pilots.

In the late 1940's and into the early 1950's, larger cities began developing airports capable of accommodating airline service, while small communities all over the country began developing their own airports in order to serve the anticipated swell in sport and business use of personal aircraft. The majority of this airport

development was undertaken with financial assistance from the federal government, through grants administered by the Civil Aeronautics Administration (CAA).

Early in 1950, a barracks-type structure was constructed at the Bisbee airport to serve as the area headquarters for the Civil Air Patrol. This building was located on the site presently occupied by the airport Terminal Building.

Three graded dirt runways were constructed at some time prior to the 1950's. These included Runway 2-20 (4,000' x 200'), Runway 15-33 (3,900' x 200'), and Runway 8-26 (2,200' x 200').

Recent  
Improvements:  
1970-1998

In the early 1970's, efforts were undertaken to acquire the necessary land interest to qualify for federal funding by the Federal Aviation Administration (FAA) and state funding by the Arizona Department of Transportation, Aeronautics Division (ADOT), in order to upgrade the airport facilities. Fee title was granted to the City of Bisbee by the Phelps Dodge Corporation in 1974.

The present Terminal Building was constructed by the City during the early 1970's at an estimated cost of \$15,000. The City also installed a fuel island, pumps and underground aviation fuel tanks at that time, at an estimated cost of \$8,000.

An Airport Layout Plan and Property Map were prepared by Ellis-Murphy Engineering, Inc. of Phoenix, Arizona in 1976 as a requirement of the FAA and ADOT grant application process.

On April 10, 1978, then Mayor Eads signed a formal application requesting a \$305,000 grant from the FAA and a \$14,972 grant from ADOT for the construction of a new 5,900' x 60' paved Runway 17-35, aircraft parking apron, connector taxiway and perimeter fencing. Construction plans were prepared by Ellis-Murphy and construction of the new improvements was completed in the Fall of 1978. Because of funding limitations, the initial pavement sections were limited to a Bituminous Surface Treatment ("chip seal") over a primed 4" Aggregate Base Course and 5" of Select material. This work was completed under the FAA Airport Development Aid Program (ADAP) as a demonstration block grant under ADOT Project Number 01250.

A segmented Circle and Lighted Wind Cone were installed during February of 1980 at a cost of \$10,982. The FAA provided \$10,000, ADOT furnished \$491 and the City provided the remaining \$491 in matching funds. Plans and specifications were prepared by Ellis-Murphy, Inc. Work was accomplished under ADAP Project Number 5-04-0004-01.

Ellis-Murphy was again retained in 1980 to prepare construction plans for installation of Medium Intensity Runway Lights (MIRL) and a new Rotating Beacon.



Construction was completed in late 1980. ADOT-Aeronautics provided \$72,000 for this project, and the City's share was \$8,000.

Runway 17-35, the connector taxiway and parking apron were overlain with 2" of Asphaltic Concrete in October of 1983 at a cost of \$313,692. The FAA provided \$285,648, ADOT-Aeronautics contributed \$14,022 and the City of Bisbee matched with the remaining \$14,022. Plans and specifications were again prepared by Ellis-Murphy, Inc.

Two 5-aircraft T-Shades were constructed by the City in the early 1980's, at an estimated cost of \$8,000.

In 1987, Ellis-Murphy was again retained to prepare a comprehensive Airport Master Plan for the Bisbee Airport. This project was accomplished in association with James Vercellino and Associates. The project was funded by an FAA planning grant in the amount of \$22,765, an ADOT-Aeronautics grant in the amount of \$1,118, with a City matching share of \$1,117 (total cost was \$25,000).

In the Fall of 1987, plans and specifications for pavement preservation of Runway 17-35, the taxiways, and aircraft parking apron were prepared. Construction was completed in November of 1988. The engineers were again Ellis-Murphy, Inc. Development costs were funded by an ADOT grant (Funding Code 91332) with a City matching share.

A full Parallel Taxiway along Runway 17-35 was constructed in 1989. The work was accomplished under FAA AIP 3-04-0004-02. The plans and specifications for the work were prepared by Management & Project Services, Inc. Of Sierra Vista, in an association with Jerry R. Jones & Associates, Inc. Of Tucson.

A Non-Directional radio Beacon (NDB) and Runway 17 and 35 PAPI systems were installed by the City of Bisbee in 1992. Plans were prepared by Johannessen & Girand, Inc. of Phoenix, Arizona. This work was funded under ADOT-Aeronautics Project A 5906-5010 N 121.

Plans and specifications for replacement of the Medium Intensity Runway Lights (MIRL) and perimeter fence were prepared in 1993/94. Work was completed in early 1995. The original direct-burial cabled MIRL system that was constructed in 1980 was replaced with a new system. All underground cable was placed in PVC duct, and the existing perimeter and terminal area fencing was replaced. The engineers for this work were an association of Gannett Fleming, Inc. (Who had acquired Ellis-Murphy in 1986), and Nicholas J. Pela & Associates. The total project costs were \$196,388. The project was funded by an FAA Airport Improvement Program (AIP) grant in the amount of \$178,828 (AIP No. 3-04-0004-03), an ADOT grant in the amount of \$8,780 (ADOT #N422), and City funding in the amount of \$8,780.

Plans were prepared in June of 1996 for the construction of an expanded aircraft parking apron, rubberized chip seal of Runway 17-35, taxiways and existing apron, installation of runway guidance signage, and removal of the fuel system and underground storage tanks. The work was completed in May of 1997, under FAA AIP No. 3-04-0004-04 (\$308,374), ADOT Project #N523 (\$15,137.20), and with local funding in the amount of \$15,137 (total cost was \$338,648.40). The engineers were once again Gannett Fleming, Inc.

The City of Bisbee installed a new above-ground fuel system in May of 1997, at a cost of \$40,000 (all City costs).

This Airport Master Plan update was commissioned in January of 1999.

**Present Use and  
Facilities: 1999 -  
Bisbee Municipal  
Airport**

Today, the Bisbee Municipal Airport functions as a General Aviation facility, providing a paved and lighted runway, a graded crosswind runway and 100LL aviation fuel service. The airport is Visual Flight Rules (VFR) only, with no published instrument approaches.

Pattern altitudes for all aircraft have been established at 5,580' MSL. Standard left traffic patterns are used for both active runways. Traffic advisories and other advisory radio communications are on 122.8, the airport's Common Traffic Advisory Frequency (CTAF). Albuquerque Center can be contacted on 124.5, and Prescott Flight Service is available on 122.4.

The primary runway, Runway 17-35, is 5,900' X 60' with asphalt pavement and pilot-controlled lighting. Precision Approach Path Indicators (PAPI) are located on both ends of the runway.

Crosswind Runway 2-20 is 2,650' X 200' , and has a well-maintained graded dirt surface.

There is a full-time Airport Manager/Fixed Base Operator (FBO) in residence on the airfield.

A courtesy car is available at the airport, and rental cars are available with a prior reservation.

REGIONAL SYSTEM  
PLANS AND PRIOR  
MASTER PLANS

Both the FAA and ADOT-Aeronautics maintain regional airport system plans as an aid to distribution and prioritization of grants-in-aid funding of airport improvements. These documents include the FAA's National Plan of Integrated Airport Systems (NPIAS) and Terminal Area Forecasts (TAF) , and the ADOT Arizona State Aviation Needs Study (SANS).

Two regional plans have been also prepared in the past for the county's airport system. These are the 1982 and 1994 Cochise County Airport System Plans.

The original Bisbee Municipal Airport Master Plan Report - 1987 included planning for the facility through the year 2010.

The National  
Plan of Integrated  
Airport Systems  
(NPIAS)

The National Plan of Integrated Airport Systems (NPIAS) identifies 3,294 existing airports that are significant to U.S. air transportation and provides estimates of development costs for its 5-year planning period. The purpose of NPIAS development is primarily to bring existing airports up to current design standards and to add capacity to congested airports.

The Bisbee Municipal Airport is included as a component of the NPIAS and, as such, is eligible to receive grants under the federal Airport Improvement Program (AIP).

The current NPIAS includes only projected numbers of based aircraft and estimated AIP-eligible development costs for the 5-year planning period (1993-1997). For Bisbee Municipal, 12 based aircraft are forecast by 1997, and \$402,000 is programmed for development.

The current NPIAS role of the airport is "General Aviation" (GA). A NPIAS GA facility is an airport with no scheduled airline service and at least 10 based aircraft. As a general rule, GA airports included on the NPIAS must be at least 30 miles from another NPIAS airport. However, the Bisbee-Douglas International Airport (about 24 miles to the east) is also included as a GA facility on the current plan. The other NPIAS airfields in Cochise County include Sierra Vista (a Primary Commercial Service Airport), Benson (a programmed new GA airport which is currently under development), and Willcox/Cochise County.

The NPIAS indicates that a total of \$5,110,000 of AIP dollars is programmed for Cochise County airports.

FAA Terminal Area  
Forecasts

The current FAA Terminal Area Forecasts (TAF) includes historical and forecast data for three Cochise County airports, including the Bisbee Municipal Airport, the Bisbee-Douglas International Airport, and the Cochise County (Willcox) Airport. The TAF database includes estimated Air Taxi & Commercial, General Aviation, Military, Itinerant and Local operations, as well as estimated numbers of based aircraft

## Section I: Introduction, Background & Inventory

for 1976 through 1996 (historical) and 1997 through 2015 (forecasts). The following is a summary of the TAF historical and forecast data for the Bisbee Municipal Airport.

**FAA Terminal Area Forecasts (TAF) for Bisbee Municipal Airport**

Year	Air Taxi Itinerant	G.A. Itinerant	Military Itinerant	Total Itinerant	Local G.A.	Total Operations	Based Aircraft
<i>Historical:</i>							
1976	0	1,000	0	1,000	1,800	2,800	
1977	0	1,000	0	1,000	1,800	2,800	
1978	0	500	0	500	6,000	6,500	
1979	0	535	0	535	6,420	6,955	
1980	100	300	0	400	4,000	4,400	17
1981	200	1,000	50	1,250	8,600	9,900	17
1982	50	1,250	10	1,310	3,500	4,820	16
1983	50	1,250	10	1,310	3,500	4,820	13
1984	50	1,250	10	1,310	3,500	4,820	13
1985	750	680	20	1,450	1,200	2,650	11
1986	750	680	20	1,450	1,200	2,650	15
1987	750	680	20	1,450	1,200	2,650	15
1988	795	702	20	1,517	1,238	2,755	15
1989	2,000	680	20	2,700	800	3,500	15
1990	2,000	680	20	2,700	800	3,500	11
1991	2,000	680	20	2,700	800	3,500	11
1992	2,000	680	20	2,700	800	3,500	11
1993	2,000	680	20	2,700	800	3,500	11
1994	1,700	600	20	2,320	700	3,020	10
1995	1,700	600	20	2,320	700	3,020	10
1996	1,700	600	20	2,320	700	3,020	10
1997	1,700	600	20	2,320	700	3,020	10
<i>Forecasts:</i>							
1998	1,700	600	20	2,320	700	3,020	10
1999	1,700	600	20	2,320	700	3,020	10
2000	1,700	600	20	2,320	700	3,020	10
2001	1,700	600	20	2,320	700	3,020	10
2002	1,700	600	20	2,320	700	3,020	10
2003	1,700	600	20	2,320	700	3,020	10
2004	1,700	600	20	2,320	700	3,020	10
2005	1,700	600	20	2,320	700	3,020	10
2006	1,700	600	20	2,320	700	3,020	10
2007	1,700	600	20	2,320	700	3,020	10
2008	1,700	600	20	2,320	700	3,020	10
2009	1,700	600	20	2,320	700	3,020	10
2010	1,700	600	20	2,320	700	3,020	10
2011	1,700	600	20	2,320	700	3,020	10
2012	1,700	600	20	2,320	700	3,020	10
2013	1,700	600	20	2,320	700	3,020	10
2014	1,700	600	20	2,320	700	3,020	10
2015	1,700	600	20	2,320	700	3,020	10

*Source: FAA Terminal Area Forecasts (TAF), updated December, 1998*

1988 Arizona  
Aviation System  
Plan and the  
1995 State Aviation  
Needs Study

The 1988 Arizona Aviation System Plan (SASP) indicated that there were 16 aircraft based at Bisbee Municipal in 1987, and projected an increase to 22 based aircraft by 1999, then increasing to 29 by the year 2010. Total annual operations were estimated at 3,072 in 1987, and forecast to be 4,442 by 1999, increasing to 6,227 by 2010.

The February, 1987 Arizona State Aviation System Inventory indicated a total of 26 aircraft based at Bisbee Municipal, including 19 Single-engine aircraft, 3 Multi-engine piston aircraft, and 4 Ultralights. Estimated annual operations totaled about 5,000. The reason for the apparent discrepancy between this inventory and the 1988 SASP is not known.

The 1995 Arizona State Aviation Needs Study (SANS) included updated projections of based aircraft for Bisbee Municipal, indicating 12 based aircraft existing in 1995, and forecasting an increase to 16 aircraft by 2015. The 1995 SANS forecasts of general aviation operations indicates 7,610 annual operations in 1995, increasing to 10,147 operations in 2015.

The SANS includes three alternate capital improvement programs for the Arizona airport system.

Scenario A assumes that the 1995 funding level will remain unchanged for the 5- and 10-year periods. For the most part, only maintenance items were included in this alternate.

Scenario B presented a program which would accommodate projected growth in the aviation system, but not necessarily provide funding to bring all airports up to current standards for safety and capacity.

Scenario C provides for a condition in which all airports would be brought up to minimum development standards and improved such that they will meet forecast demand.

The following is a summary of the recommended SANS Scenario C improvements and estimates of cost for development at Bisbee Municipal Airport:

<b>1995-2000</b>	Install PAPI .....	\$ 40,000
	Construct pilot waiting area .....	45,000
	Construct maintenance facility .....	125,000
	Grade, drain & surface apron and auto parking ....	350,000
	Install ASOS .....	130,000
	Update Airport Master Plan .....	100,000
	Acquire land - RPZ (21 acres) .....	312,980
	Construct north/south taxiway & taxilanes .....	236,108
	Erosion control/drainage improvements .....	200,000
	Install security fence (6,000 LF) .....	100,000

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	Acquire land for runway extension (67 acres) . . . .	1,005,000
	Erosion control/drainage . . . . .	800,000
	Construct apron (20,000 SY) . . . . .	250,000
	Acquire land - Rwy 35 RPZ (53 acres) . . . . .	250,000
	Pavement maintenance . . . . .	<u>230,400</u>
	<b>TOTAL . . . . .</b>	<b>\$ 4,044,488</b>
<b>2001-2005</b>	Extend apron (90 SY) . . . . .	\$ 2,030
	Widen Rwy 17-35 and strengthen to 60,000 SWG . . .	800,000
	Extend Rwy 17-35 & Install MRL/MITL . . . . .	1,200,000
	Pavement maintenance . . . . .	<u>610,100</u>
	<b>TOTAL . . . . .</b>	<b>\$ 2,612,130</b>
<b>2006-2015</b>	Widen parallel taxiway . . . . .	\$ 207,515
	Additional 225' Twy/Rwy clearance . . . . .	200,000
	Pavement maintenance . . . . .	<u>791,600</u>
	<b>TOTAL . . . . .</b>	<b>\$ 1,199,115</b>

### The Cochise County Airport System Plans: 1982 and 1994

The original Cochise County Airport System Plan was prepared in 1982 by Willdan Associates of Phoenix, Arizona. This plan focused on the apparent overbuilding and duplication of airport facilities in close proximity to one another within Cochise County, specifically the Bisbee-Douglas International, Douglas Municipal, Cochise College and Bisbee Municipal airports. Several alternatives for consolidation of airports within the county were suggested. Through the remainder of the 1980's and into the 1990's, however, each of the Cochise County airports have continued to be developed and improved by their owners, ostensibly to serve their respective "niche" markets.

In July of 1992, WLB Group of Tucson, Arizona was retained to update the Cochise County Airport System Plan. Although originally conceived as a "fast-track" planning program with a 14-week completion schedule (to take advantage of then-available funding), WLB did not complete the plan until March of 1994. (In the following discussion the 1994 Cochise County Airport System Plan will be referred to as the "1994 Plan".)

The goal of the 1994 Plan was to "determine the future aviation activity and demand at airports within Cochise County, in order to plan for future growth, improvements and expansion at these airports . . . without providing for redundant facilities".

The 1994 Plan noted that the Bisbee-Douglas International (BDI), Bisbee Municipal, Douglas Municipal and Cochise College airports have overlapping geographic service areas where these four airports serve the two population centers of Bisbee and Douglas. It was noted that 17 aircraft were based at Bisbee Municipal in 1992. The 1994 Plan predicted that the number of based aircraft at Bisbee Municipal would

increase in the future to 20 in 1997, and to 29 in 2012.

The 1994 Plan included forecasts of based aircraft and annual operations for each of the Cochise County airports. The forecasts for Bisbee Municipal are presented in the table below.

1994 Cochise County Airport System Plan  
Forecasts for Bisbee Municipal Airport

	1992	1997	2002	2007	2012
Based Aircraft	17	20	22	25	29
Annual Operations	3,600	5,000	6,050	6,875	8,700

Source: Cochise County Airport System Plan, 1994

The 1994 Plan classified Bisbee Municipal as a General Aviation airport. Recommended improvements for Bisbee Municipal included in the 1994 Plan consisted of only the following items:

- Widen Runway and taxiways.
- Install Medium Intensity Taxiway Lighting (MITL).
- Improve the Crosswind Runway (2-20).
- Install additional shaded aircraft tiedowns.
- Provide security lighting.

These improvements were given a "Medium Priority" rating as compared to improvements at the other County airports. Improvements to the BDI, Douglas Municipal, and Cochise College airports shared the "Medium Priority" rating. Improvements to Sierra Vista, Cochise County/Willcox, and Benson airports were given a "High Priority" rating. Improving Bowie and Tombstone airports (both classified as Secondary airfields in the SANS) was considered a "Low Priority".

#### Bisbee Municipal Airport Master Plan Report - 1987

The Bisbee Municipal Airport Master Plan Report - 1987, prepared by Ellis-Murphy, Inc. and James Vercellino & Associates of Phoenix, Arizona, indicated that there were 23 based aircraft in 1987 and an estimated 9,775 total annual operations. The study projected that annual operations would remain fairly constant through 1995, then increase to 10,200 by the year 2000 (with 24 based aircraft), and 11,475 annual operations by 2010 (with 27 based aircraft).

The 1987 Master Plan recommended the following improvements. Completed projects are indicated with an asterisk (\*):

**Short Term 1987-1991:**

- Runway and Apron Preservation\*
- Construct Taxiway from Apron to Runway 17-35
- Expand Aircraft Parking Apron by 7,000 SY\*
- Pave Auto Parking Area and Entrance Road (10,000 SF)
- Reinforce Aircraft T-Shades
- Raze 3 Metal Hangars (1 has been razed)
- Construct FBO Building including Repair Shop
- Extend Security Fence (200 LF)\*
- Clear Industrial and Commercial Development Areas

**Intermediate Term 1992-1996**

- Extend Runway 17-35, Parallel Taxiway and MIRL 500'.
- Install Precision Approach Path Indicators\*
- Construct 6 Tee Hangars
- Pave Runway 2-20 (3,200' x 60')

**Long Term 1997-2006**

- Runway and Apron Pavement Preservation
- Taxiway Pavement Preservation
- Install Non-Directional Radio Beacon (NDB)\*
- Construct Additional Hangars and T-Shades

**Approved Airport  
Layout Plan (1989)**

The latest approved Airport Layout Plan (ALP) for the Bisbee Municipal Airport was prepared in 1989 by Gannett Fleming, Inc. (Ellis-Murphy, Inc). The document was approved by the City of Bisbee on February 15, 1989 and submitted to the FAA as the official ALP for the airport. The approved ALP reflects the improvement recommendations as contained in the 1987 Master Plan.



### INTRODUCTION: INVENTORY OF EXISTING AIRPORT FACILITIES

This section of the Master Plan will provide a baseline record of the general condition of the various airport facilities at the Bisbee Municipal Airport (P04).

The condition of the facilities was determined by engineering and architectural investigations and surveys conducted during January of 1999. Specific field investigations were made to determine the condition of the airport's existing pavements, buildings, drainage, fencing, and utilities.

The investigations included research of available record plans and documents in addition to the field surveys. Record surveys and "as-built" plans were consulted in order to establish horizontal and vertical control, as well as to accurately locate major airport improvements, structures and topographic features.

In the following narrative, each facility has been assigned a general condition rating of "Good", "Fair", or "Poor". A facility rated as "Good" may be assumed to be substantially adequate throughout the 20-year time frame of this study, assuming only normal maintenance. A rating of "Fair" means that the item will probably require major upgrade or replacement at some time during the planning period, but is at least serviceable at the present time. A rating of "Poor" indicates that the item is not adequate for its intended use at the present time.

Recommendations for improvements to the airport facilities will be included in Section 3 of this report (Airport Facility Requirements).

### AIRPORT PAVEMENT CONDITION

This section documents the condition of the airport's existing pavements as they were in January of 1999. Two separate ratings have been assigned to each of the paved facilities. In each case, condition of the actual supporting structure of the pavement section was rated separately from the surface characteristics. The condition of the pavements were determined by visual observations. No testing was performed as a part of this inventory.

In general, the airport's pavement structures are in Good condition. Very little cracking was observed on the pavement surface, and there were no major deformations that could be attributed to subgrade deficiencies or failures. However, the surface of virtually all of the pavement area exhibits evidence of loose aggregate and aggregate loss. This results in a hazardous situation, since the loose aggregate may be sucked into aircraft propellers and jet engines. Because of this, the pavement surfaces were characterized as in generally Fair to Poor condition.

The condition of the various existing pavements is presented graphically on Figure 1A, Pavement and Drainage Inventory (4 sheets), at the end of this section.

Runway 17-35

Runway 17-35 was originally constructed in 1978 with a Chip Seal over 4" of Aggregate Base and 5" of Select Material. The original pavement section was overlain with a 2" lift of Asphaltic Concrete in 1983, and a 3/4" Asphaltic Concrete Runway Friction Course was applied in 1988. A rubberized Chip Seal was applied and crack sealing was accomplished in 1997. The pavement structure was found to be in generally Good condition, with little surface cracking evident and no evidence of subgrade problems.

The runway pavement surface exhibits significant areas of loose aggregate, and has been rated as Fair to Poor.

The runway shoulders are relatively clear of vegetation. They are appropriately graded and maintained to assure adequate drainage. However, there is as much as a 3" - 4" drop from the edge of pavement to the graded shoulder along much of the runway. This constitutes a potential safety hazard. Therefore the runway shoulders are considered to be in Poor condition.

Runway 2-20

Runway 2-20 is a graded dirt landing strip, originally constructed some time prior to the 1950's. The surface of the runway is well-maintained and was found to be relatively smooth and free of vegetation at the time of the January, 1999 inventory. The condition ratings for both structure and surface are Good.

Runway 17-35  
Parallel Taxiway

The Runway 17-35 parallel taxiway and its connector taxiways (A-1 through A-6) were originally constructed in 1989. A rubberized Chip Seal was applied and crack sealing was accomplished in 1997. No significant surface cracking was noted and there is no evidence of subgrade problems. The pavement structure was found to have a general condition rating of Good.

The parallel taxiway pavement surface exhibits significant areas of loose aggregate, and has been rated as Fair to Poor.

Although the taxiway is equipped with retroreflective edge markers, many are missing or damaged. The edge markers are considered to be in Poor condition.

Portions of the taxiway shoulders exhibit the same degree of dropoff from the edge of pavement as Runway 17-35, and are considered to be in Poor condition.

Graded Taxiway  
to Runway 20

The graded taxiway to the Runway 20 departure end is 100' wide and 1,100' in length. The surface of the taxiway is well-maintained and was found to be relatively smooth and free of vegetation at the time of the January, 1999 inventory. The condition ratings for both structure and surface are Good.

### Runway to Apron Connector Taxiway (Taxiway A-3)

The Runway 17-35 to Apron connector taxiway was originally constructed in 1978 with a Chip Seal over 4" of Aggregate Base and 5" of Select Material. The original pavement section was overlain with a 2" lift of Asphaltic Concrete in 1983, and a Bituminous Flush Coat preservative seal was applied in 1988. A rubberized Chip Seal was applied and crack sealing was accomplished in 1997. The pavement structure was found to be in generally Good condition, with little surface cracking in evidence.

The connector taxiway pavement surface exhibits significant areas of loose aggregate, and has been rated as Fair to Poor.

### Aircraft Parking Apron

The north half of the Aircraft Parking Apron was originally constructed in 1978 with a Chip Seal over 4" of Aggregate Base and 5" of Select Material. The original pavement section was overlain with a 2" lift of Asphaltic Concrete in 1983, and a Bituminous Flush Coat preservative seal was applied in 1988. A rubberized Chip Seal was applied and crack sealing was accomplished in 1997. The pavement structure was found to be in generally Good condition.

The south half of the Apron was constructed in 1997 with a Chip Seal over a 2½" lift of Asphaltic Concrete pavement, and 6" of Aggregate Base Course. This pavement's structure was also found to be in generally Good. Some vegetative infiltration (weeds) was observed in an area near the southwest corner of the apron.

The entire parking apron pavement surface exhibits significant areas of loose aggregate, and has been rated as Fair to Poor.

There are 28 tiedown spaces on the apron (13 on the older north half and 15 on the south half). The tiedown anchors are in Good condition, but the "T" paint markings are faded (Poor). Taxiway center line markings are Good.

### T-Shade and Hangar Area Pavement

The apron in the terminal hangar and shade area was constructed some time prior to the 1950's. A Bituminous Flush Coat preservative seal was applied in 1988, and a rubberized Chip Seal was applied in 1997. The pavement structure of this original section of the apron was found to be in Poor condition, with obvious evidence of pavement distress and an uneven surface.

The hangar and T-shade apron pavement surface exhibits significant areas of loose aggregate, and has also been rated as Poor.

### Automobile Parking and Airport Access Road

There are 2 tiedowns located just east of the Terminal Building on this apron. The anchors are in Fair condition, and paint markings are faded (Poor).

The automobile parking area adjacent to the Terminal Building consists of a graded

gravel surface, about 50' x 100' in size, with wooden bumper curbs. The parking area is able to accommodate about a dozen parked cars. The graded surface was found to be in Fair condition.

There is a single signed handicapped parking space located adjacent to the Terminal Building.

Access to the airport is through a cattle guard in the highway/property line fence. A graded dirt road extends to the north along the auto parking area, and continues around the north end of the aircraft parking T-shades. The road provides access to the fuel system, parking apron, shades and hangars. The condition of the road is Fair.

#### AIRPORT DRAINAGE

A visual inspection of the existing airport storm drainage culverts and surface drainage features indicates that the system appears to be functional and in generally Good condition. At the time of the field inspection, some of the culverts were clogged with debris and require routine maintenance. The median between Runway 17-35 and the parallel taxiway is crossed by four connector taxiways (A-2 through A-5), in addition to the turnarounds at each runway end (taxiways A-1 and A-6). Runoff from the runway and taxiways drains from the north to the south in a graded swale and through culvert crossings at each connector taxiway. The culverts were installed in 1989 with the construction of the parallel taxiway and connector taxiways.

The location and condition of the major drainage features is presented graphically on Figure 1A, Pavement and Drainage Inventory (4 sheets), at the end of this section.

#### AIRPORT LIGHTING AND VISUAL AIDS

Existing airport lighting systems include the Medium Intensity Runway Lighting (MIRL) on Runway 17-35, and existing lighted taxiway guidance signage. The existing taxiways are also equipped with retroreflective edge markers.

Existing visual aids include the Precision Approach Path Indicators (PAPI) on both the Runway 17 and 35 approaches, the airport's rotating beacon, and the lighted Wind Cone and Segmented Circle.

#### Runway Lighting (MIRL) System

The MIRL lights, cable, duct, and handholes for Runway 17-35 were replaced in 1995. (The original direct-burial MIRL system had been installed in 1980). The regulator and electrical equipment in the electrical vault was installed with the original lighting system in 1980. The MIRL fixtures and system, and the electrical equipment were found to be in Good condition.

Rotating Beacon

The rotating beacon is mounted on the roof of the Terminal Building. It was installed in 1980 with the original airport lighting systems, and was found to be in Good condition.

Wind Cone and  
Segmented Circle

The lighted Wind Cone and Segmented Circle were installed in 1980, with a direct-burial cable system. The cable was replaced and placed in duct in 1995. The equipment and electrical service were found to be in Good condition.

PAPI's

The existing Precision Approach Path Indicators (PAPI's) were installed on both ends of Runway 17-35 in 1992. The equipment and services were found to be in Good condition.

Taxiway Guidance  
Signs

The existing lighted taxiway guidance signs were installed in 1997. All and were found to be operational, installed in accordance with the plans, and in Good condition.

AVIATION FUEL  
DELIVERY AND  
STORAGE  
SYSTEM

The existing aircraft fueling system consists of an above-ground tank (100LL) and self-service pumps, located adjacent to the Aircraft Parking Apron. The tank and delivery equipment is located on a 10' x 30' concrete slab and is protected by pipe bollards. The fuel system was constructed in 1995 and is in Good condition. It is in compliance with all currently applicable environmental and regulatory codes.

An emergency shutoff valve is located in a hand hole at the northwest corner of the Parking Apron.



*The Above-Ground Fuel System*

UTILITIES

Water is supplied by the Naco Water Company, and is fed to an onsite holding tank, then pumped from the tank to serve the airport's Terminal Building. Water pressure is low. The system is considered to be in Fair condition.

Sewage is disposed of via an existing septic tank system which is in Good condition.

The Terminal Building and a restroom in one hangar are connected to the system.

The existing airport electrical system is not adequate for the present demand and should be upgraded.

PROPERTY LINE AND  
SECURITY FENCE

The airport's barbed wire property line fencing and chain link terminal area security fencing were replaced in 1995. The system was found to be constructed according to plan and intact, and is in Good condition.

NON-DIRECTIONAL  
RADIO BEACON  
(NDB)

The existing NDB was installed in 1992. It has been out of service for several years because of a lightning strike, and is in Poor condition.

SECURITY LIGHTING

Existing Security lighting consists of area floodlights mounted on poles adjacent to the existing hangars. Condition is Fair.

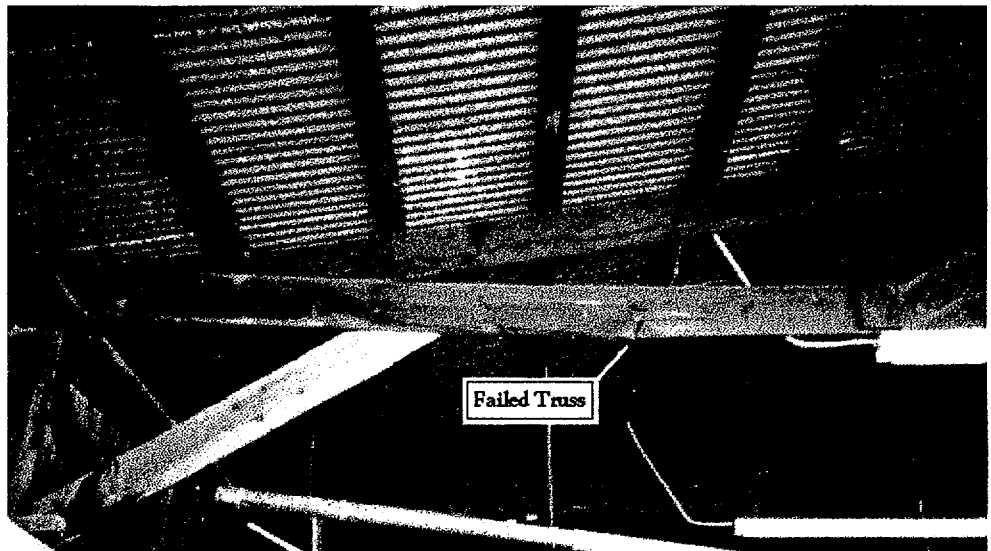
BUILDING  
CONDITION  
ANALYSIS

There are five existing buildings and two "T-Shade" structures on the airport property at the present time. The shades, Terminal Building, two of the hangars and the "Quonset" type storage building are owned by the City of Bisbee. One of the hangars is privately owned.

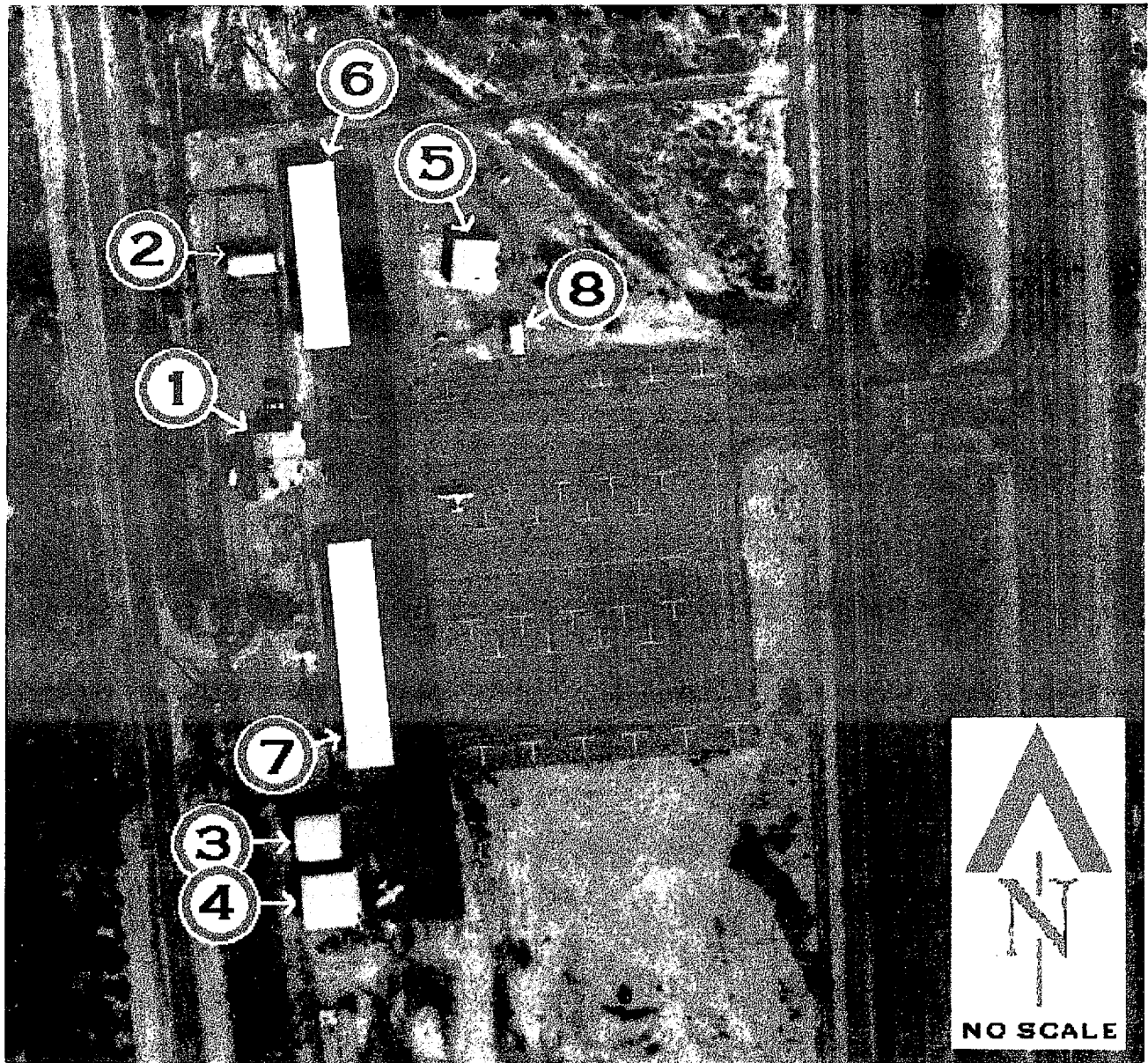
The aerial photograph on the following page is an index map of the present terminal area. Discussion of the condition and utilization of each building or structure follows the index map.



*Building #7 - the south T-Shades  
(see discussion on Page 1-28)*



*Detail of a failed wood truss in Hangar Building #4 (see discussion on Page 1-27)*



BUILDING AREA KEY MAP

L E G E N D

1	Terminal Building (City-Owned)	5	Privately-Owned Hangar
2	"Quonset" Storage Building (City-Owned)	6	Open T-Shades (City-Owned)
3	City-Owned Hangar	7	Open T-Shades (City-Owned)
4	City-Owned Hangar	8	Fuel Pumps and Above-Ground Tank



**Terminal Building  
(Building #1)**

The Terminal Building was originally constructed in the 1970's. It is approximately 45.33' x 33.5' (about 1,520 square feet under roof), and contains the airport manager's residence (about 1,007 square feet), as well as a public area (about 513 square feet) with two restrooms, a small lobby and the manager's office. The building is equipped with evaporative cooling and natural gas heat. Water is provided through the onsite storage tank, and sewer is disposed of through the onsite septic tank system.

The building is of masonry construction, using 8" thick x 4"x 16" Concrete Masonry Units with slump block fascia. The roofing materials were replaced in January of 1999. The structure, plumbing, electrical and gas service and building exterior and roof were found to be in Good condition. The interior condition and adequacy for its present use is Fair and adequate handicapped access is not provided (see below).

A small frame electrical vault building is attached the Terminal Building. It was added in 1980, as part of the original runway lighting system installation project, and is in Good condition.

There is a public telephone located on the north exterior wall of the Terminal Building, adjacent to the auto parking area.

ADA Compliance:

This building was constructed prior to the enactment of the current ADA and the



*The airport Terminal (Building #1) in the process of reroofing.*

Uniform Building Code requirements for the physically handicapped, and as a result, is in noncompliance. The following items should be addressed during building renovation:

1. Door entrances and hardware.
2. Restroom fixtures, hardware, and clearances.
3. Signage
4. Telephone and vending accessibility.
5. Marked Handicapped Parking and accessible routes.

### Storage Building (Building #2)

Building #2 is a 20' x 40' Quonset-style building that is owned by the City and leased for storage purposes. The building's walls are of Concrete Masonry Unit (CMU) construction and a steel roof system, with 44" high stem walls and lightweight galvanized steel barrel trusses above (the trusses are fabricated 2"x 4" "I" sections made from welding two 1"x 4" channels together). The trusses are spaced approximately 10' apart, with 2x4 wooded girts between them. The roofing material is corrugated galvanized steel. There is a 10' high x 10'-4" wide overhead vehicular access door on the east end of the building, facing the apron area as well as a 3'-8" wide access door on the west end.

The building is heated, and has electrical outlets along the interior walls. Interior wiring is in steel conduit. A 3-phase electrical service entrance and disconnect is located on a light pole at the southeast corner of the building. The pole is equipped with a floodlight and weatherproof outlet. Although the building's electrical system appears to be in Good condition, it has been disconnected.

The building was constructed in about 1980. Although the CMU walls, concrete floor slab and electrical service and equipment are in Good condition, the roof structure is rated as only Fair, since corrosion is evident on most of the steel framing members. The overhead vehicular door does not operate properly, and is in Fair condition.

### Aircraft Storage Hangar (Building #3)

Building #3 is a 40' x 35' steel-constructed aircraft storage hangar, built in about 1932. The hangar has a concrete floor and foundation, and is framed entirely out of 2" steel pipe which are welded and cable-braced. The side walls are 12' high and roof framing members are 2" steel pipe barrel trusses, spaced about 9' apart. The roofing and siding are corrugated steel.

A 40' wide 4-panel sliding door is on the east end of the hangar, opening toward the apron. The door is of 2" steel pipe construction with corrugated steel siding. It is hung on an exterior door track with timber posts and jamb. The door track extends 11' either side of the hangar.

The hangar can accommodate a single airplane.

There are electrical outlets along the interior walls and wiring is in steel conduit. No electrical breaker panel is evident, and service enters the building from an underground conduit at the north side of the building. Lighting is by fluorescent ceiling fixtures. The building is not heated.

Building #3 is 14.5' away from an adjacent hangar (Building #4). The door track and its supporting post is only about 3' away.

The steel pipe wall, roof and door framing members exhibit extensive corrosion. Building #3 is considered to be in generally Poor condition.

Aircraft Storage  
Hangar  
(Building #4)

Building #4 is a 42' x 46' masonry and frame aircraft storage hangar, built around 1932. The building has a concrete floor and foundation, with 8' high and 12" thick stuccoed masonry side walls. The side walls extend an additional 3 feet, using wood frame construction. The gable roof framing is made up of 2x8 bolted wood trusses spaced at about 9' on center, with 2x4 girts at 24" on center. The roof and framed portion of the side walls are covered with corrugated steel siding.

A 42' wide 4-panel sliding door is located on the east end of the building, opening toward the apron. The door is hung on a double end truss and door track with timber posts. The door track extends 10' either side of the hangar.

The hangar has space for a single airplane.

There are electrical outlets along the interior walls and wiring is in steel conduit. A 125 amp 110/220 3-phase service entrance and breaker panel is located on the inside of the north wall. Lighting is by fluorescent ceiling fixtures. There is also a telephone entrance box on the north wall. The building is not heated.



*Hangar Buildings #3 (foreground) and #4*

A light pole with floodlight is located at the northeast corner of the building.

This hangar is 14.5' away from Building #3. The door track and its supporting post for Building #3 is only about 3' away.

There is a 12' x 16' room with a storage loft above and a 4' x 6' restroom located within this hangar (in the northwest corner of the building). The restroom has a toilet and sink.

The foundation, concrete slab and electrical service equipment and wiring were found to be in Good condition. However, the wood framed roof system shows signs of structural distress, with cracked and deformed framing members. These are characterized as in Poor condition. The frame sidewall extensions, corrugated steel roofing and siding, doors, hardware and lighting were also found to be in Poor condition. The 12' x 16' interior room shows evidence of rodent damage to the walls and floor plates.

Building #4 is considered to be in generally Poor condition. The masonry walls, foundation and slab could be salvaged. The building could be made serviceable with the installation of new side wall extensions, roof framing and door, and upgraded lighting.

Aircraft Storage  
Hangar  
(Building #5)

Building #5 is a privately owned aircraft storage hangar. The building size is approximately 36' x 42'. It is of steel frame construction with steel siding, built in the mid-1980's. There is a 36' wide 8-section steel framed and sided sliding door on the west end of the building. A wind cone pole is located adjacent to the southeast corner of the building. The top of the pole is about 23.5' above the ground.

The hangar can accommodate a single airplane.

Building #5 is in Good condition.

Aircraft T-Shades  
(Building #6 &  
Building #7)

Buildings #6 and #7 are City-owned aircraft parking shades. They are of structural steel construction, with concrete footings and a cantilevered roof. The north T-shade (#6) will accommodate 4 aircraft. The south T-shade (#7) will accommodate 5 aircraft.

Both of the T-shade structures were constructed in the mid-1980's.



*T-Shades (Building #6) with Quonset Building #2 in the background.*

Building #6 is located on the north side of the terminal area. It is 42' wide x 162' long (roof dimensions) and can accommodate 5 parked aircraft. Building #7 is located on the south side of the terminal area. It is 42' wide x 205' long (roof dimensions) and can accommodate 6 aircraft. They are both in Good condition.

ESTABLISHED  
AIRPORT  
ELEVATION

The established airport elevation is defined as the highest point on an airport's usable runway expressed in feet above mean sea level (MSL). The highest point on the Bisbee Municipal Airport's existing active runways is the threshold of Runway 17, at 4,804.33 MSL. This is an "as-built" record elevation, the source of which is the Bisbee Municipal Airport - Construction Plans: Runway, Taxiway and Apron Paving prepared by Ellis-Murphy, Inc. in January of 1978 (revised "as-built" in September 5, 1978).

WEATHER DATA:  
TEMPERATURE  
AND  
PRECIPITATION

The average daily maximum and minimum temperatures and the average total precipitation for Bisbee is presented below.

WEATHER DATA FOR BISBEE, ARIZONA

Month	Average Temperature (°F)		Average Total Precipitation (Inches)
	Daily Maximum	Daily Minimum	
January	56.9°	33.7°	1.40"
February	61.1°	35.6°	0.77"
March	65.5°	39.8°	0.98"
April	74.1°	46.4°	0.49"
May	81.3°	53.4°	0.15"
June	89.9°	62.6°	0.76"
July	89.3°	64.5°	3.70"
August	87.2°	62.7°	4.21"
September	85.7°	59.5°	1.45"
October	76.6°	50.7°	0.91"
November	66.5°	40.3°	0.44"
December	59.6°	35.4°	0.95"
Year	74.5°	48.7°	16.21"

Source: Arizona Department of Commerce, Communications Division - in cooperation with the City of Bisbee

### FAA AIRCRAFT AND AIRPORT CLASSIFICATIONS

The FAA classifies airports according to the type of aircraft they are able to accommodate. Airports that are designed to serve larger and/or faster aircraft are subject to different (stricter) design criteria than those that will serve only smaller aircraft. The various applicable design criteria are contained in FAA Advisory Circulars (AC's), as well as Federal Air Regulations (FAR's).

### Aircraft Classifications

Aircraft are grouped by the FAA by wingspan into six *Airplane Design Groups*, and by approach speed into four *Approach Categories*. The airport design criteria and dimensional standards for airport facilities are related to the Airplane Design Groups, Approach Categories, and type of approaches offered based on the minimum visibility required to legally execute an approach to landing, as follows:

- ▶ Visual;
- ▶ Instrument with visibility minimums of  $\frac{3}{4}$  mile or greater;
- ▶ Instrument with visibility minimums less than  $\frac{3}{4}$  mile.

The six Airplane Design Groups (ADG) and the five Aircraft Approach Categories are categorized as follows:

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#### FAA AIRPLANE DESIGN GROUPS (ADG's)

ADG I	Wingspan up to but not including 49' (ie. Cessna 177, Cessna 210, Piper Cheyenne).
ADG II	Wingspan from 49', up to but not including 79' (ie. Cessna Citation II, Gulfstream II, III).
ADG III	Wingspan from 79', up to but not including 118'(ie. Boeing 737, Convair 580, Fairchild F-27).
ADG IV	Wingspan from 118', up to but not including 171' (ie. Convair 880, Boeing 707).
ADG V	Wingspan from 171', up to but not including 197' (ie. Boeing 747).
ADG VI	Wingspan from 197', up to but not including 262' (ie. Lockheed C-5A).

Source: FAA AC 150/5300-13

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FAA AIRCRAFT APPROACH CATEGORIES

- Category A** Approach speed less than 91 knots (ie. Cessna 182, Beechcraft Bonanza).
- Category B** Approach speed 91 knots or more but less than 121 knots (ie. Piper Cheyenne, Cessna Citation).
- Category C** Approach speed 121 knots or more but less than 141 knots (ie. Learjet 25, Rockwell Sabre 75A).
- Category D** Approach speed 141 knots or more but less than 166 knots (ie. Learjet 35A, Grumman Gulfstream II).
- Category E** Approach speed 166 knots or more (pertains only to military types).

Source: FAA AC 150/5300-13

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**Airport  
Classifications**

The FAA classifies airports by the type of traffic they experience, or are designed to accommodate. Each airport is assigned an *Airport Reference Code* (or ARC), which is a coding system used to relate airport design criteria to the operational and physical characteristics of the aircraft intended to operate at the airport.

The ARC is a two-component code. The first component, depicted by a letter between A and E, corresponds to the Aircraft Approach Category of the design aircraft for that airport (see the table above). The second component, depicted by a Roman numeral between I and VI, corresponds to the Airplane Design Group (ADG) of the design aircraft (see the table above).

**PRESENT ROLE OF  
THE BISBEE  
MUNICIPAL AIRPORT**

Based on a comparison between the design criteria contained in FAA Advisory Circular AC 150/5300-13 and the existing airport facilities, the Bisbee Municipal Airport is presently able to accommodate small aircraft (less than 12,500 pound takeoff weights), up to Approach Category B (less than 121 knot approach speeds), and Airplane Design Group II (wingspan less than 79 feet).

An ARC B-II reference code is indicated as the airport's present role.

## AIRPORT SERVICE AREAS

In determining the airport's general aviation service area, it was assumed that aircraft owners choose to base their aircraft at the airport which is closest to their residence, which will provide the level of services required by their particular need. All other factors being equal (such as the condition of the airports' facilities and competitive rates and charges) the determining factor in this decision is almost always the length of the paved runway which is required by the type of aircraft to be operated.

Current FAA planning guidelines for airport siting indicate that a general aviation airport should be located no more than thirty minutes driving time from business, charter and private aircraft users. This is a valid assumption, since the main advantage in flying is the savings in long distance travel time.

In theory, an airport service area for a particular role or function extends halfway to nearby airports which are capable of serving the same function. However, the concentration of public use general aviation airfields in southern Cochise County makes definition of a realistic unique service area difficult.

Figure 1B, at the end of this section, illustrates a theoretical service area for the Bisbee Municipal Airport. The service area delineation was based upon an examination of the service areas that were defined in other Cochise County planning documents, including the 1994 Cochise County Airport System Plan, or RASP (WLB Group, Inc. - March, 1994), the Bisbee-Douglas International Airport Comprehensive Master Plan (Nicholas J. Pela & Associates/Gannett Fleming - June, 1997), and the Cochise County Airport Master Plan (Bucher, Willis & Ratliff - December, 1997), and the Tombstone Municipal Airport Master Plan - 1999 (Nicholas J. Pela & Associates/Gannett Fleming - February, 1999).

The 1994 RASP defined service areas for all public-use airports in the county, based on a 15-mile radius general aviation service area around each airport, including Bisbee Municipal. The Bisbee-Douglas and Cochise County airport master plans defined a more extensive general aviation service area for their subject airports. These service areas have been combined on Figure 1B to indicate the areas of the county that are probably adequately served by a general aviation airport. The remaining area around the Tombstone Municipal Airport was accepted as its service area in the recent Master Plan for that facility.

For the purposes of this study, it is assumed that the Bisbee Municipal Airport shares an overlapping service area with the Bisbee-Douglas, Cochise College, and possibly Douglas Municipal airports, as defined in the 1994 RASP.

The role of the Bisbee airport is service to the general aviation community, which includes business travel, charter, sport aviation, and training, as well as private use of light aircraft. With continued maintenance and improvements, the airport will be able to continue to fulfill its role within its service area and the county's airport system.



THE COCHISE  
COUNTY AIRSPACE  
SYSTEM

The Cochise County airspace system is illustrated in Figure 1C at the end of this section.

The Bisbee Municipal Airport is located beneath the Tombstone C Military Operations Area (MOA), which includes airspace vertically from 14,500' MSL up to, but not including, 18,000' MSL (Flight Level 180). The MOA is active Monday through Friday from 1300 until 0400 GMT.

MOA's are designed to confine military training operations within a specific area. They are not restricted airspace. Therefore, civilian pilots may transit an MOA, but should maintain radio communications with the controlling entity (Albuquerque Center in this case).

Restricted Areas may not be entered by civilian aircraft without specific permission from the controlling entity.

The R-2303A and R-2303B Restricted Areas are located directly west of the Bisbee airport. These are roughly centered on the Sierra Vista/Libby AAF airfield. R-2303A includes the airspace from the surface to 15,000' MSL. R-2303B includes the airspace from 15,000' MSL to Flight level 250. Both Restricted Areas are active Monday through Friday from 0700 until 1600 GMT, and other times by Notice to Airmen (NOTAM).

The Contiguous U.S. Air Defense Identification Zone (ADIZ) parallels the U.S./Mexico border, which is less than 2 miles south of the Bisbee airport.

Another Restricted Area, R-2312, is located about 25 miles west of Bisbee's airport. This area includes airspace from the surface up to 15,000' MSL, and is in operation continuously. The airspace protects a cable-moored surveillance balloon and cable which is used to monitor air traffic through the Contiguous U.S. ADIZ.

A military visual training route, VR-263, transits the area about 15 miles north of the Bisbee airport. Most of the military training activity on this route is from the Libby AAF, Davis Monthan (Tucson), and Luke (Phoenix) Air Force Bases. This activity will most probably continue throughout the time frame of this study.

Victor Airway V66 also passes about 15 miles north of Bisbee. V66 is the main route between the Tucson (TUS) and the Douglas (DUG) VORTAC transmitters. The minimum en route altitude for aircraft on IFR flight plans along the segment of this route is 9,500' MSL.

No apparent conflicts between the existing activity at Bisbee and the present airspace structure and use have been noted.

EXISTING AIRPORT  
LAND USE

The present land uses and zoning of the land adjacent to the airport are shown in summary on Figure 1D, Existing Land Use Zoning at the end of this section.

All of the existing airport property is currently in aviation-related use, but is in an area currently zoned as RU-4 (Residential Use - Minimum 4 Acre Size). All adjacent land is also included in the RU-4 zoning area.

No existing incompatible land uses are evident.

The Bisbee Airport is located less than two miles from the U.S./Mexico border. No international intergovernmental agreements presently exist that would allow the airport to protect land uses outside of the United States. Therefore, the potential exists for future incompatible uses to be developed.

## Section I: Introduction, Background & Inventory

### EXISTING AIRPORT LAND USE

The present land uses and zoning of the land immediately adjacent to the airport are shown in summary on Figure 1D, Existing Land Use Zoning at the end of this section. The source of this information is the Official Cochise County Zoning District Map, Amended Z-95-11, 2/12/96.

All of the existing airport property is currently in aviation-related use, but is within an area currently zoned as RU-4 (Residential Use - Minimum 4 Acre Size). All adjacent land is also included in the RU-4 zoning area. There are three privately owned lots adjacent to the airport that are planned to be developed for commercial/industrial uses.

The Elks Club is located immediately adjacent to the south boundary of the airport. None of the buildings or facilities are located within the airport's approach surfaces or Runway Protection Zones.

No existing incompatible land uses are evident.

### FUTURE AIRPORT LAND USE

The City of Bisbee's Master Plan indicates that future land use in the airport's vicinity (including the airport and all immediately adjacent land) will be "Heavy Industrial".

The Bisbee Airport is located less than two miles from the U.S./Mexico border. No international intergovernmental agreements presently exist that would allow the airport to protect land uses outside of the United States. Therefore, the potential exists for future incompatible uses to be developed.

FIGURE 1A  
SHEET 1 OF 4

PAVEMENT & DRAINAGE  
INVENTORY

BISBEE MUNICIPAL AIRPORT  
MASTER PLAN - 1999

TAXIWAY A-1  
STRUCTURE = GOOD  
SURFACE = FAIR/POOR  
(NO CULVERTS)

PARALLEL TAXIWAY  
STRUCTURE = GOOD  
SURFACE = FAIR/POOR

RUNWAY 17-35  
STRUCTURE = GOOD  
SURFACE = FAIR/POOR

TAXIWAY A-2  
STRUCTURE = GOOD  
SURFACE = FAIR/POOR  
29"x 18" CMPA = GOOD

2-22"x 36" CMPA = GOOD

RUNWAY 2-20  
STRUCTURE = GOOD  
SURFACE = GOOD  
(GRADED DIRT)

R.C. AIRCRAFT  
RUNWAY

SEE SHEET 2

CMPA



SEE SHEET 1

# FIGURE 1A

SHEET 2 OF 4

## PAVEMENT & DRAINAGE INVENTORY

BISBEE MUNICIPAL AIRPORT  
MASTER PLAN - 1999

GRADED TAXIWAY  
STRUCTURE = GOOD  
SURFACE = GOOD  
(GRADED DIRT)

LIGHTED  
WIND CONE  
(GOOD)

TAXIWAY A-3  
STRUCTURE = GOOD  
SURFACE = FAIR/POOR  
2-30" RCP = GOOD

APRON  
(SEE SHEET 4)

RUNWAY 2-20  
STRUCTURE = GOOD  
SURFACE = GOOD  
(GRADED DIRT)

TAXIWAY A-4  
STRUCTURE = GOOD  
SURFACE = FAIR/POOR  
3-36" RCP = GOOD

43"x 27" CMPA = GOOD

SEE SHEET 3

SEE SHEET 2

FIGURE 1A

SHEET 3 OF 4

PAVEMENT & DRAINAGE  
INVENTORY

BISBEE MUNICIPAL AIRPORT  
MASTER PLAN - 1999

RUNWAY & TAXIWAY  
SHOULDERS  
(POOR)

TAXIWAY A-5  
STRUCTURE = GOOD  
SURFACE = FAIR/POOR  
3-36" RCP = GOOD

ABANDONED  
RUNWAY

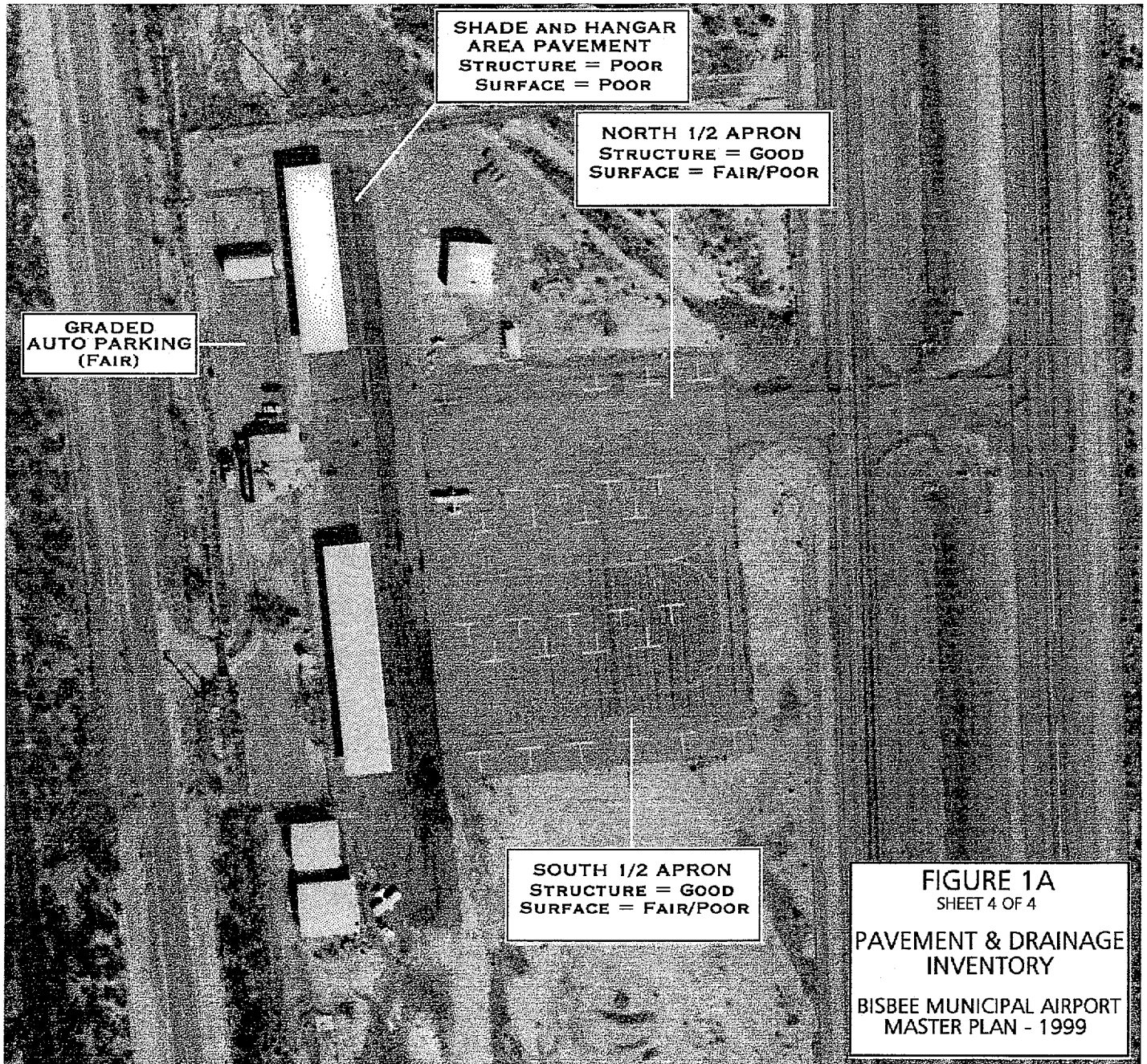
PARALLEL TAXIWAY  
STRUCTURE = GOOD  
SURFACE = FAIR/POOR

RUNWAY 17-35  
STRUCTURE = GOOD  
SURFACE = FAIR/POOR

35

TAXIWAY A-6  
STRUCTURE = GOOD  
SURFACE = FAIR/POOR  
3-36" RCP = GOOD





SHADE AND HANGAR  
AREA PAVEMENT  
STRUCTURE = POOR  
SURFACE = POOR

NORTH 1/2 APRON  
STRUCTURE = GOOD  
SURFACE = FAIR/POOR

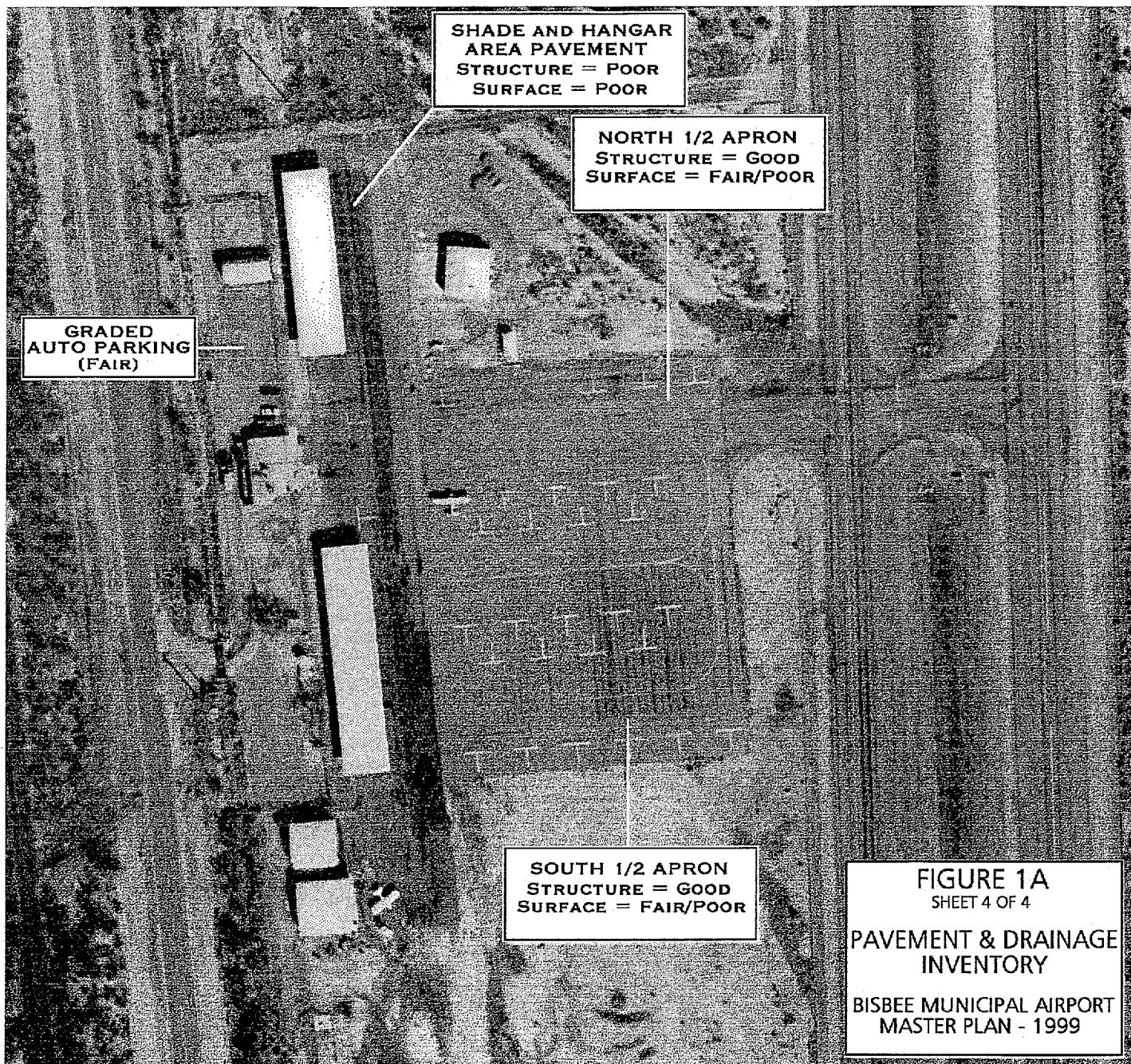
GRADED  
AUTO PARKING  
(FAIR)

SOUTH 1/2 APRON  
STRUCTURE = GOOD  
SURFACE = FAIR/POOR

FIGURE 1A  
SHEET 4 OF 4

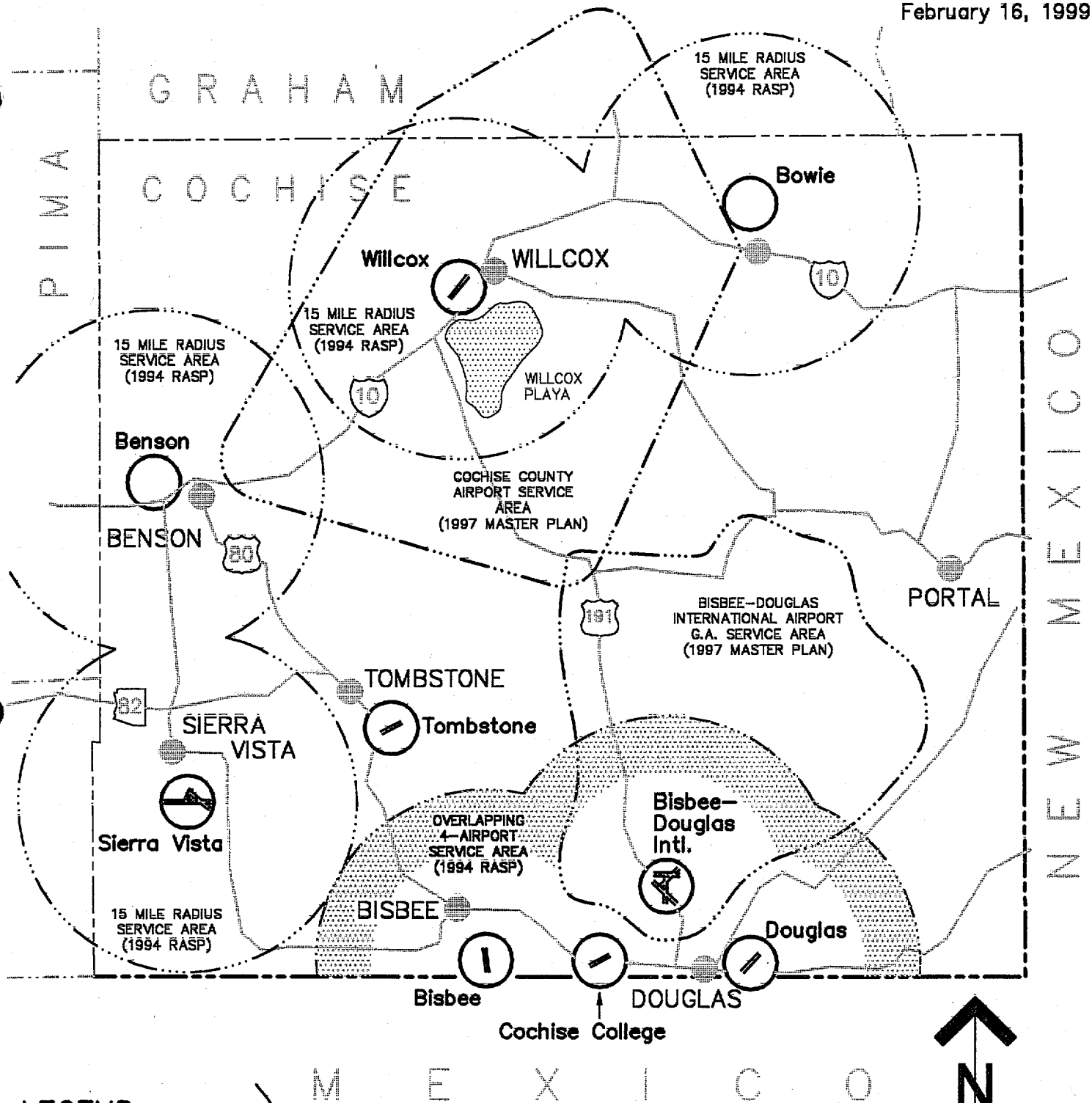
PAVEMENT & DRAINAGE  
INVENTORY

BISBEE MUNICIPAL AIRPORT  
MASTER PLAN - 1999





February 16, 1999



**LEGEND:**



Bisbee

INDICATES EXISTING  
AIRPORT LOCATION

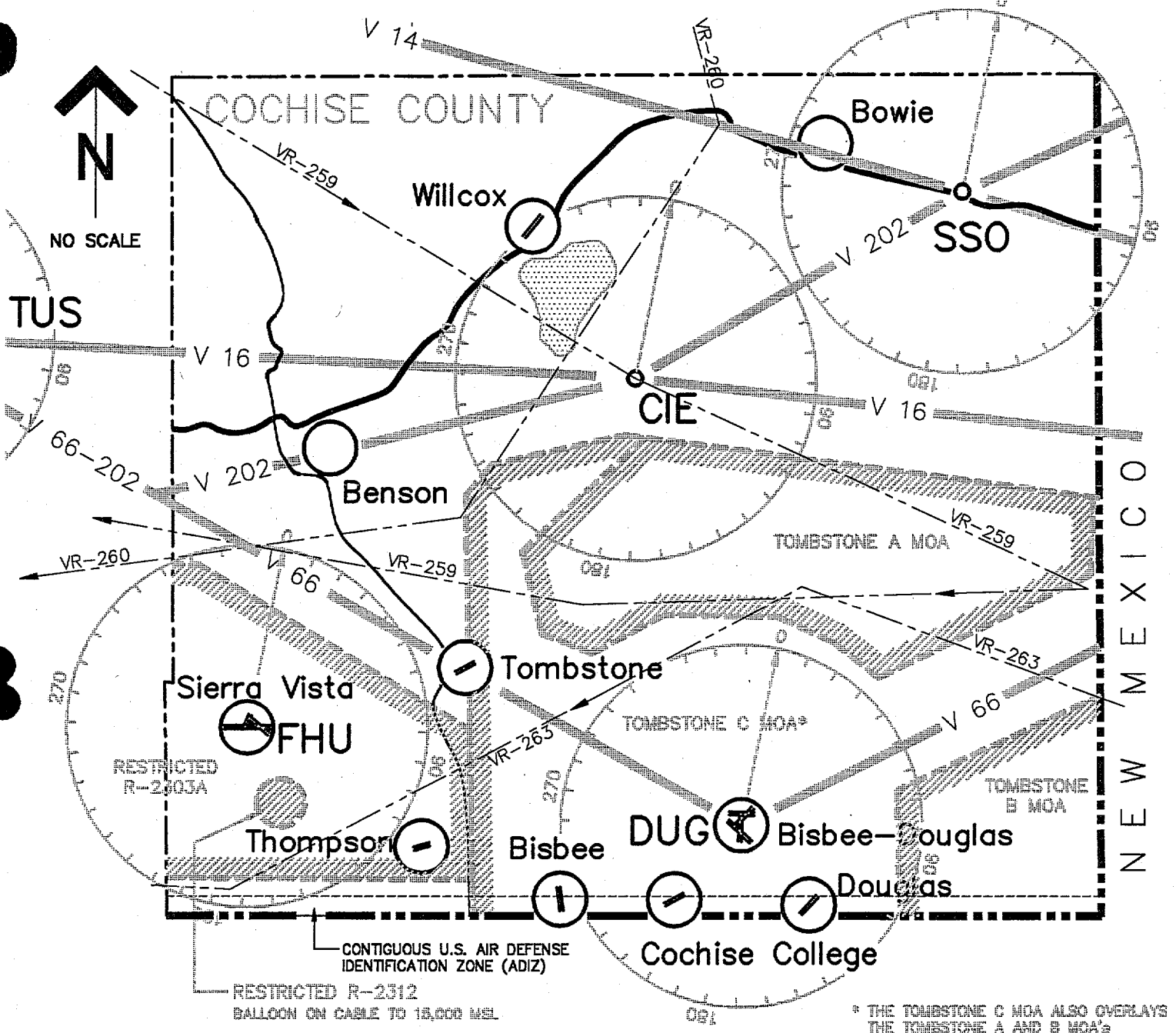
BISBEE



INDICATES EXISTING  
CITY OR TOWN LOCATION

INDICATES SERVICE  
AREAS AS DEFINED  
IN OTHER STUDIES

**FIGURE 1B**  
**AIRPORT SERVICE AREAS**  
**BISBEE MUNICIPAL AIRPORT**  
**MASTER PLAN - 1999**

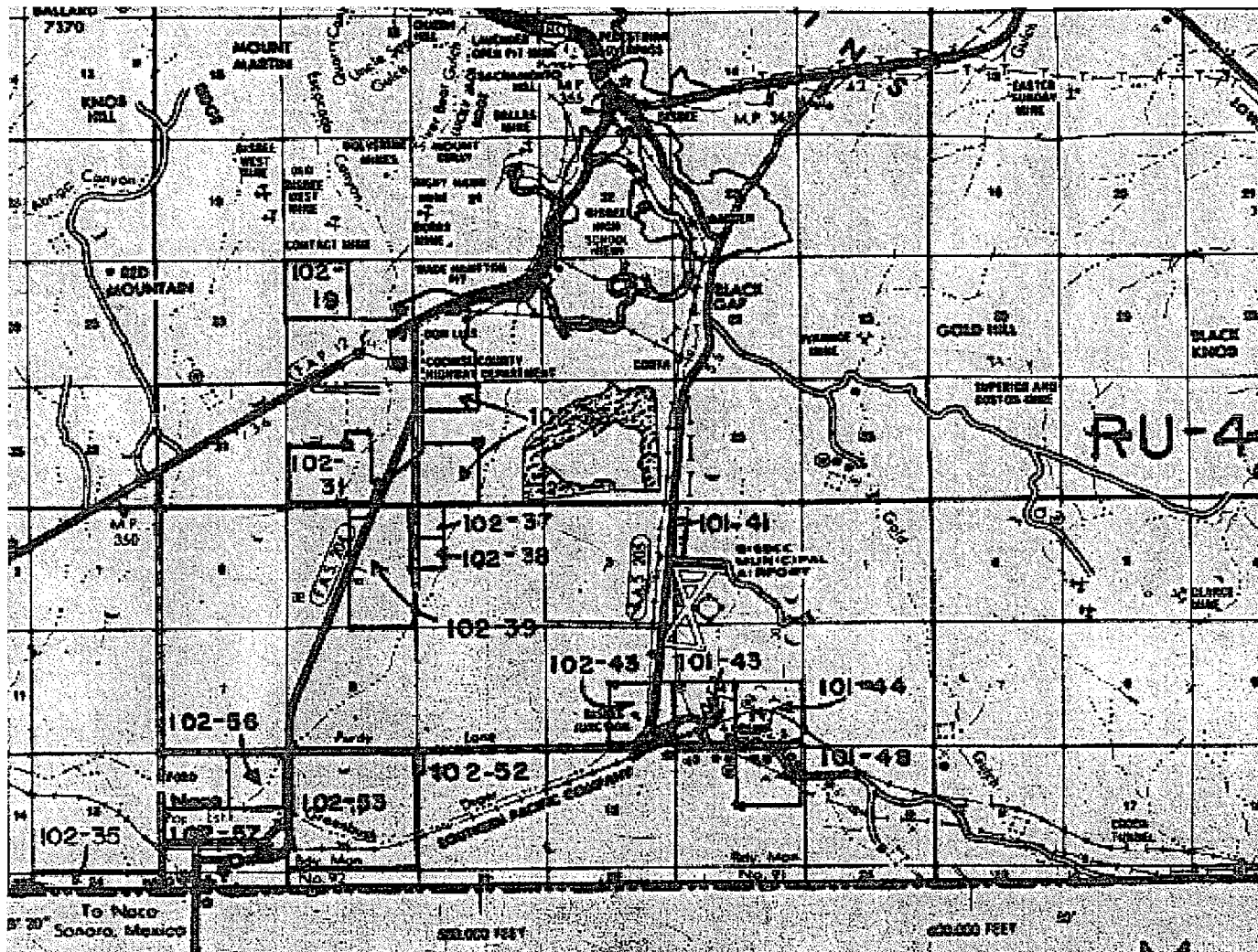


- V 16** INDICATES VICTOR AIRWAY
- INDICATES RESTRICTED OR MILITARY OPERATIONS AREA
- VR-260** INDICATES MILITARY TRAINING ROUTE
- INDICATES EXISTING AIRPORT

COMPASS ROSE INDICATES THE LOCATION OF AN EXISTING VOR, VORTAC, OR VOR/DME TRANSMITTER.

What is FHU, DUG, CIE?  
 " " date of aeronautical chart

**FIGURE 1C**  
**COCHISE COUNTY AIRSPACE**  
**BISBEE MUNICIPAL AIRPORT**  
**MASTER PLAN - 1999**



**FIGURE 1D**  
**EXISTING LAND USE**  
**ZONING**  
**BISBEE MUNICIPAL AIRPORT**  
**MASTER PLAN - 1999**

Source: Official Cochise County Zoning District  
 Map, Amended Z-95-11, 2/12/96

Where is the  
 Legend - ?  
 Scale - ?  
 Highlight the  
 airport ?

where is residential  
 commercial  
 industrial

For map +